REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1-11 are pending in the application.

I. Rejection under 35 U.S.C. section 102

In the Office Action, at page 2, claims 1, 6 and 7 were rejected under 35 U.S.C. section 102(b) as being unpatentable over U.S. Patent No. 3,881,085 to Traister. This rejection is respectfully traversed because Traister does not discuss or suggest at least:

> an AC voltage phase detection unit to detect a phase of the inputted AC voltage when a magnitude of the inputted AC voltage is over a predetermined level;
>
> a pulse signal generation unit to generate a heater lamp control pulse signal based on a result of the detection; and
>
> a control unit to control a drive- timing of the heater lamp based on the generated heater lamp control pulse signal,

as recited in independent claim 1.

Further, Traister does not discuss or suggest at least:

> detecting a phase of the inputted AC voltage when a magnitude of the inputted AC voltage is over a predetermined level;
>
> generating a heater lamp control pulse signal based on a result of the detection; and
>
> controlling a drive- timing of the heater lamp based on the generated heater lamp control pulse signal,

as recited in independent claim 7.

As a non-limiting example, the present invention as set forth in claim 1, for example, is directed to a heater lamp control apparatus to apply an AC voltage through a power input unit to a heater lamp. The control apparatus includes an AC voltage phase detection unit, a pulse signal generation unit and a control unit to control the drive-timing of the heater lamp. The AC voltage phase detection unit detects a phase of inputted AC voltage when a magnitude of the AC voltage is over a predetermined level.

Traister discusses a fuser control circuit that controls power to the fuser of an electrostatic type reproduction machine in response to voltage levels across the fuser heat source. Traister discusses that "gate 67 of amplifier 60 is set to a suitable d.c. reference voltage level." Traister further discusses that "line voltages across heating lamp 44 of fuser 40 are constantly monitored...[,] the output of winding 53 of transformer 51 is rectified...[,] and the resulting d.c. signal voltage serv[es] to charge control capacitor 60.

In Traister, "when the charge on capacitor 60 reaches a predetermined level, the signal voltage in line 64 to gate 65 of amplifier 66 switches amplifier 66 to a conductive state," and the "resulting control signal in line 69 triggers SCR 46 to a blocking condition," thus interrupting power to fuser lamp 44. In Traister, when the power to lamp 44 is terminated, the signal voltage falls and control capacitor 60 discharges through resistor 62. With the switching amplifier 66 conductive, the voltage in line 69 charges capacitor 70 and when the charge on capacitor 70 reaches a predetermined level, amplifier 66 is switched back to a non-conductive state. With the loss of control signal 69, SCR 46 is reset to a conductive state and power input to the heating lamp is restored.

Traister does not, however, discuss or suggest the use of an AC voltage phase detection unit that detects a phase of AC voltage when a magnitude of the voltage is over a predetermined level. Traister merely discusses a charge on capacitor 60 reaching a predetermined level, but does not suggest that the phase of the AC voltage is detected. While Traister discusses what occurs when the charge on the capacitor reaches a predetermined level, Traister does not suggest use of an AC voltage phase detector where a phase of the AC voltage is detected when a magnitude of the AC voltage is over a predetermined level. Traister makes no mention of detecting a phase of AC voltage when the magnitude of the voltage is over a predetermined level.

Further, Traister neither discusses nor suggests that a heater lamp control pulse signal is generated based on a result of the detection of the phase of AC voltage which is detected when the magnitude of the voltage is over a predetermined level. Traister discusses that SCR 46 can be triggered to a blocking condition to interrupt power to fuser lamp 44 and then, once reset to a conductive state, power input to the heating lamp is restored. But merely controlling the energization of the heating lamp does not suggest detecting a phase of AC voltage when a magnitude of the voltage is over a predetermined level, then generating a heater lamp control pulse signal based on the result of the detection.

In addition, Traister does not discuss controlling the drive-timing of the lamp based on the control pulse signal generated based on a result of detection of a phase of inputted AC voltage. Traister discusses a predetermined first capacitor charge to switch a switching means to a blocking condition, such that power to the heater is interrupted, and discusses a predetermined second capacitor charge to trigger a switching means to a conducting condition, such that power is provided to the heater. However, Traister is silent as to generating a control pulse signal that controls the drive-timing of the lamp, where the control pulse signal is generated based on a result of detection of a phase of AC voltage when magnitude of the inputted AC voltage is over a predetermined level.

Therefore, as Traister does not discuss or suggest "an AC voltage phase detection unit to detect a phase of the inputted AC voltage when a magnitude of the inputted AC voltage is over a predetermined level; a pulse signal generation unit to generate a heater lamp control pulse signal based on a result of the detection; and a control unit to control a drive- timing of the heater lamp based on the generated heater lamp control pulse signal," as recited in independent claim 1, claim 1 patentably distinguishes over the reference relied upon. Remaining independent claim 7, with different scope and breadth, is allowable for at least similar rationale. Accordingly, withdrawal of the § 102(b) rejection is respectfully requested.

Claim 6 depends directly from independent claim 1 and includes all the features of clam 1, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim 6 recites that "the control unit controls a fixing unit circuit to be switched on and off according to pulses in the heater lamp control pulse signal so that a voltage supplied from the power supply unit is applied to the heater lamp." Therefore, claim 6 patentably distinguishes over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(b) rejection is respectfully requested.

II. Allowable Subject Matter

Applicants are appreciative of the indication by the Examiner that claims 2-5 and 8-11, which are objected to, would be allowable if rewritten in independent form. Based on the distinctions between independent claims 1 and 7 and Traister, claims 2-5 and 8-11 have not been rewritten in independent form at this time.

CONCLUSION

In accordance with the foregoing, claims 1-11 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 10/4/06

By: _____

Kari P. Footland
Registration No. 55,187

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501